

## JWX6053



### Industrial-Grade 3x3 Dual-Band, Dual-

### Concurrent 802.11ac Enterprise Networking

JWX6053 is a 3x3 802.11ac Dual-Band Wi-Fi module in standard Mini PCIe card form factor designed to deliver up to 1.3Gbps wireless data rates and target next-generation dual-band, dual-concurrent (DBDC) wireless access points, routers and gateways. A new, highly efficient architecture reduces overall system cost, processing requirements and power consumption, while nearly tripling wireless performance, to enable broad adoption.

#### Features

- IEEE 802.11ac compliant & backward compatible with 802.11a/b/g/n
- 3x3 MIMO Technology, up to 1.3Gbps
- Support for IEEE 802.11d, e, h, i, j, k, r, u, v time stamp, w, and z standards
- Supports 20/40/80MHz and 256-QAM to maximize bandwidth efficiency.

#### System Information

Wireless: IEEE 802.11ac/abgn (3T3R)

Chipset: Qualcomm Atheros QCA9890-BR4B

#### Data Rate

802.11b: 11Mbps

802.11a/g: 54Mbps

802.11n: 450Mbps

802.11ac: 1.3Gbps

#### Operating Frequency

IEEE802.11bgn: 2.412GHz~2.484GHz

IEEE802.11ac: 5.180GHz~5.850GHz

#### Application

Enterprise network access equipment, Gateway, Medical equipment, Gaming machines, handheld devices, security systems, etc.

## Specification

<b>Standards</b>	IEEE 802.11ac/a/b/g/n (3T3R)
<b>Chipset</b>	Qualcomm Atheros QCA9890-BR4B
<b>Interface</b>	PCIe for WiFi
<b>Form Factor</b>	Mini PCIe
<b>Antenna</b>	3x IPEX MHF1 connectors
<b>Modulation</b>	Wi-Fi: 802.11b: DSSS (DBPSK, DQPSK, CCK) 802.11g: OFDM (BPSK, QPSK, 16-QAM, 64-QAM) 802.11n: OFDM (BPSK, QPSK, 16-QAM, 64-QAM) 802.11a: OFDM (BPSK, QPSK, 16-QAM, 64-QAM) 802.11ac: OFDM (BPSK, QPSK, 16-QAM, 64-QAM, 256-QAM)
<b>Power Consumption</b>	4W (Max)
<b>Operating Voltage</b>	DC 3.3V $\pm$ 5%
<b>Operating Temperature Range</b>	-40°C to 85°C
<b>Storage Temperature Range</b>	-40°C to +90°C
<b>Operating Humidity (Non-Condensing)</b>	10%~90%
<b>Storage Humidity (Non-Condensing)</b>	5%~90%
<b>Dimension L x W x H (in mm)</b>	29.8mm x 50.8mm
<b>Driver Support</b>	Linux
<b>Security</b>	64/128-bits WEP, WPA, WPA2, 802.1x
<b>Certification</b>	FCC/CE

## Output Power & Sensitivity

802.11b/g		
Data Rate	TX +/- 2dB	RX Sensitivity +/- 2dB
1~11Mbps	18 dBm	-90 dBm
6Mbps	18 dBm	-90 dBm
24Mbps	18 dBm	-84 dBm
54Mbps	13 dBm	-75 dBm

802.11n / 2.4GHz				
Data Rate	TX +/- 2dB (1TX)	TX +/- 2dB (3TX)	RX Sensitivity +/- 2dB	
VHT 20	MCS0	17 dBm	22 dBm	-93 dBm
	MCS4	16 dBm	21 dBm	-84 dBm
	MCS7	11 dBm	16 dBm	-77 dBm
VHT 40	MCS0	17 dBm	22 dBm	-91 dBm
	MCS4	16 dBm	21 dBm	-81 dBm
	MCS7	11 dBm	16 dBm	-74 dBm

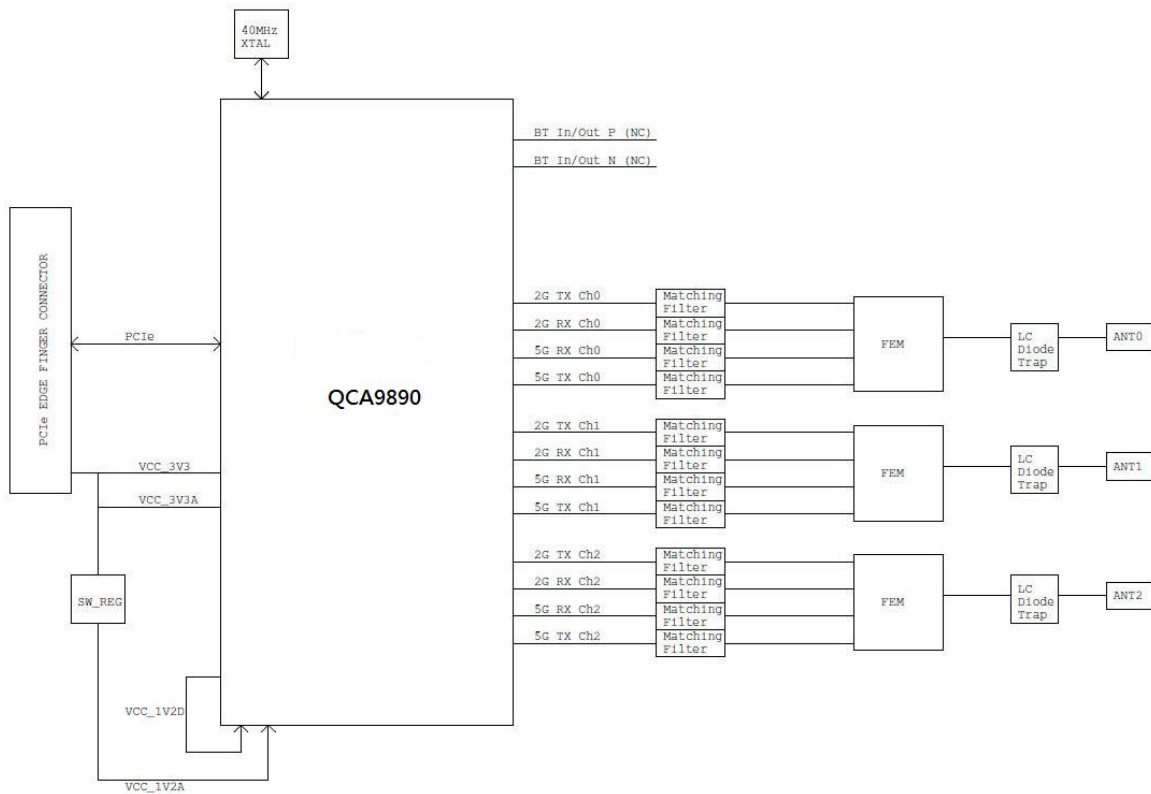
802.11a		
Data Rate	TX +/- 2dB	RX Sensitivity +/- 2dB
6Mbps	16 dBm	-93 dBm
24Mbps	16 dBm	-84 dBm
54Mbps	13 dBm	-76 dBm

802.11n / 5GHz				
Data Rate	TX +/- 2dB (1TX)	TX +/- 2dB (3TX)	RX Sensitivity +/- 2dB	
VHT 20	MCS0	16 dBm	21 dBm	-95 dBm
	MCS4	15 dBm	20 dBm	-84 dBm
	MCS7	11 dBm	16 dBm	-77 dBm
VHT 40	MCS0	16 dBm	21 dBm	-92 dBm
	MCS4	15dBm	20dBm	-81 dBm
	MCS7	11 dBm	16 dBm	-74 dBm

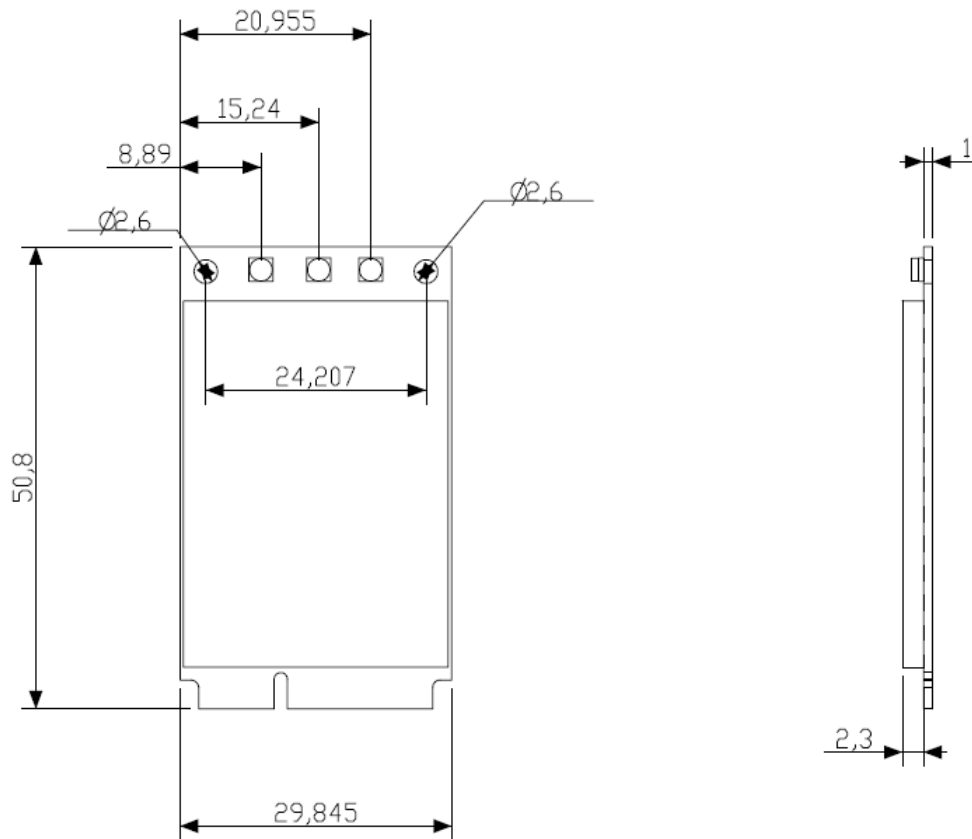
802.11ac				
Data Rate	TX +/- 2dB (1TX)	TX +/- 2dB (3TX)	RX Sensitivity +/- 2dB	
VHT 20	MCS0	16 dBm	21dBm	-95 dBm
	MCS4	15 dBm	20 dBm	-84 dBm

	MCS8	10 dBm	15 dBm	-72 dBm
VHT 40	MCS0	16 dBm	21 dBm	-92 dBm
	MCS4	15 dBm	20 dBm	-81 dBm
	MCS9	10 dBm	15 dBm	-69 dBm
VHT 80	MCS0	16 dBm	21 dBm	-89 dBm
	MCS4	14 dBm	19 dBm	-78 dBm
	MCS9	9 dBm	14 dBm	-65 dBm

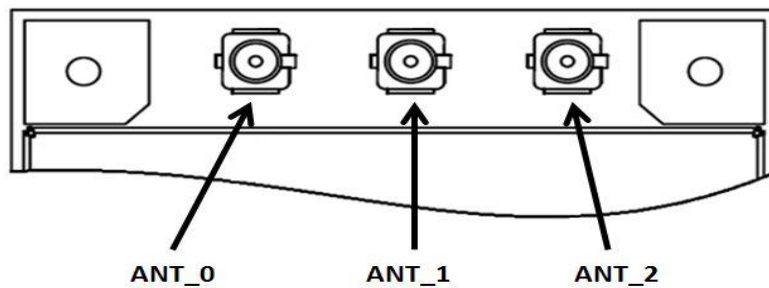
## Block Diagram



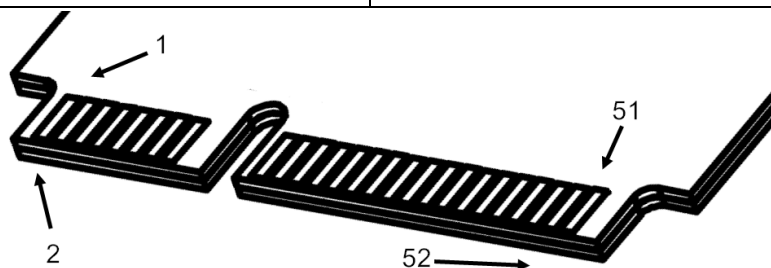
## Dimension



## Pin Assignment



Pin Name	Description
Ant_0, Ant_1, Ant_2	RF Antenna for WiFi 2.4GHz / 5GHz



## Pin Assignment

PIN#	Pin Name	Design Status	PIN#	Pin Name	Design Status
1	WAKE_L	Yes (PCIE_WAKE_L)	2	+3.3Vaux	YES
3	COEX1	NC	4	GND	YES
5	COEX2	NC	6	+1.5V	NC
7	CLKREQ_L	YES (PCIE_CLKREQ_L)	8	UIM_PWR	YES (Reserved)
9	GND	YES	10	UIM_DATA	YES (Reserved)
11	REFCLK-	YES (PCIE_REFCLK_N)	12	UIM_CLK	YES (Reserved)
13	REFCLK+	YES (PCIE_REFCLK_P)	14	UIM_RESET	YES (Reserved)
15	GND	YES	16	UIM_VPP	NC
17	UIM_C8	NC	18	GND	YES
19	UIM_C4	NC	20	W_DISABLE_L	YES
21	GND	YES	22	PERST_L	YES (PCIE_RST_L)
23	PERn0	YES (PCIE_TX_N)	24	+3.3Vaux	YES
25	PERp0	YES (PCIE_TX_P)	26	GND	YES
27	GND	YES	28	+1.5V	NC
29	GND	YES	30	SMB_CLK	NC
31	PETn0	YES (PCIE_RX_P)	32	SMB_DATA	NC
33	PETp0	YES (PCIE_RX_N)	34	GND	YES
35	GND	YES	36	USB_D-	NC
37	GND	YES	38	USB_D+	NC
39	+3.3Vaux	YES	40	GND	YES
41	+3.3Vaux	YES	42	LED_WWAN_L	NC
43	GND	YES	44	LED_WLAN_L	YES (GPIO1_WLAN_LED)
45	RESERVED	NC	46	LED_WPAN_L	YES (GPIO17_BT_LED)
47	RESERVED	NC	48	+1.5V	NC
49	RESERVED	YES (VCC_FEM_4V)	50	GND	YES
51	RESERVED	NC	52	+3.3Vaux	YES

## Order Information

Product Name	Description
JWX6053	802.11ac/a/b/g/n 3x3 Industrial-Grade Mini PCIe Module